Data Sheet

BioTracker™ 519 Green β-Gal Dye

Live Cell Dye

SCT025

Pack Size: 5 x 40 nmol

Store at –20 °C

FOR RESEARCH USE ONLY

Not for use in diagnostic procedures. Not for human or animal consumption.

Background

β-galactosidase, also called beta-gal or β-gal, is a glycoside hydrolase enzyme that catalyzes the hydrolysis of β-galactosides into monosaccharides through the breaking of a glycosidic bond. β-gal is commonly used in molecular biology as a reporter marker to monitor gene expression using the chromogenic X-Gal. β-gal has also been used to measure cellular senescence (SA-β-gal).

The BioTracker™ 519 Green β-Gal Dye is a fluorescent probe for the detection of β-galactosidase in living cells. It can be applied to fluorescent imaging and selection of cell and tissue transfected with lacZ along as a measurement of cellular senescence. Other applications include gene analysis by fluorescent imaging, monitoring transfection efficiency, and the study of gene promoter or enhancer elements. The dye can stain LacZ expressing HEK293 cells both before and after 3% paraformaldehyde fixation.

Spectral Properties

Absorbance: 497 nm

Emission: 519 nm

Storage and Handling

Store BioTracker™ 519 Green β-Gal Dye at –20 °C, desiccated and protected from light.

Note: Centrifuge vial briefly to collect contents at bottom of vial before opening.

Representative Data

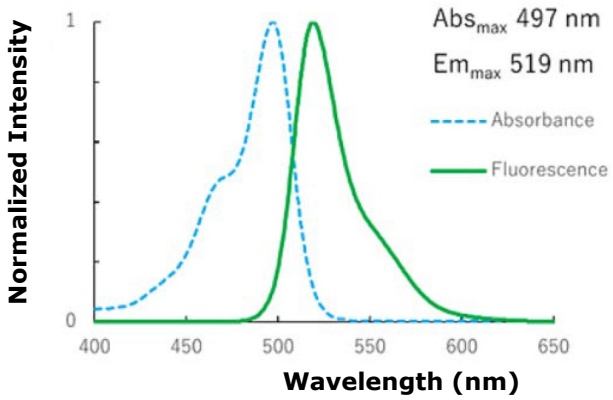

Figure 1. Fluorescent spectra of BioTracker™ 519 Green β-Gal Dye after 30-minute incubation with β-galactosidase.

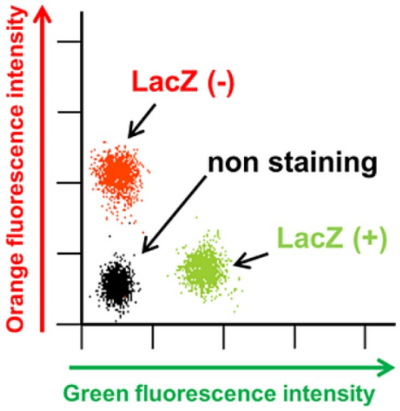

Figure 2. Flow cytometry results of HEK293 (LacZ+) and HEK293 (LacZ–) cells stained with 3 µM of BioTracker™ 560 Orange Lysosome Dye for 18 hours and with 1 µM of BioTracker™ 519 Green βGal Dye for 1 hour.

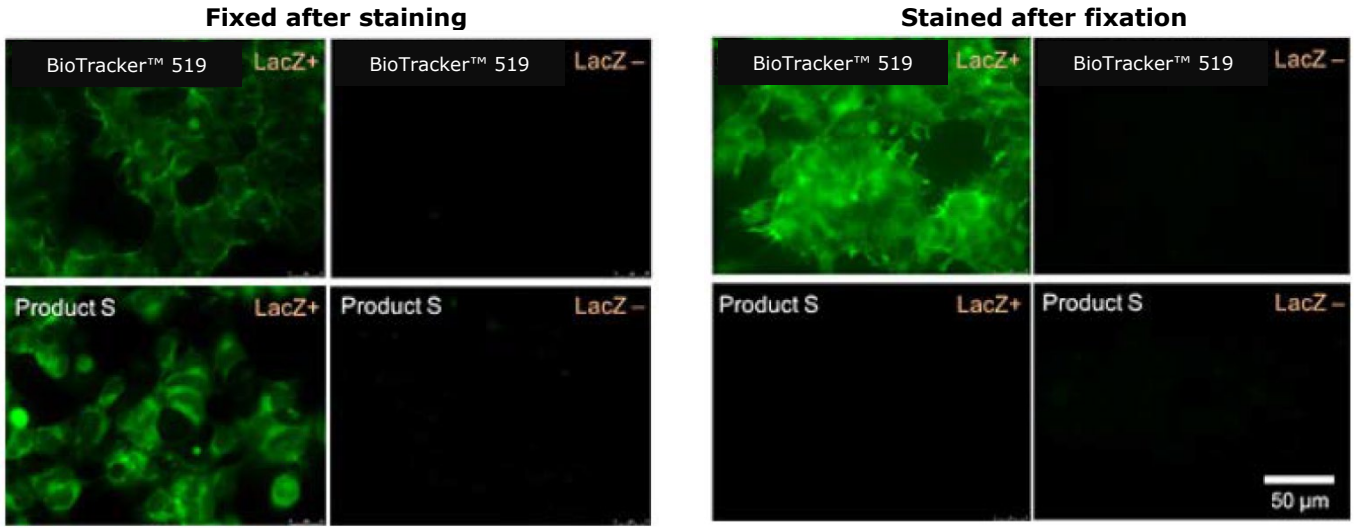

Figure 3. BioTracker™ 519 Green β-Gal Dye can stain LacZ expressing HEK293 before and after 3% paraformaldehyde fixation when competitor Product S can not stain after fixation.

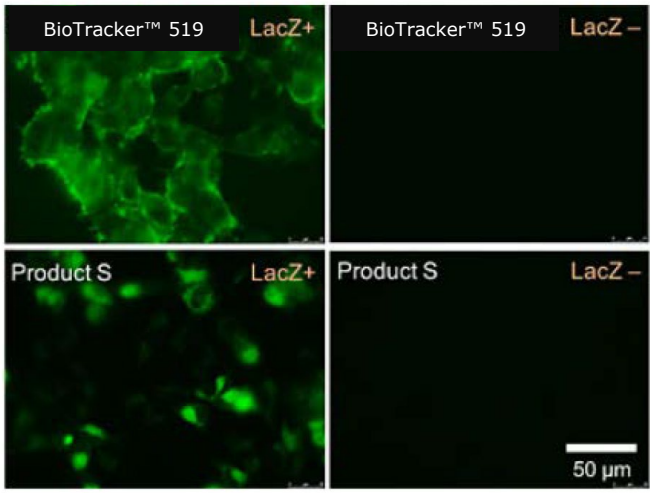

Figure 4. Live cell imaging of LacZ expressing HEK293 cells (LacZ+) and normal HEK293 cells (LacZ–) stained with 1 µM BioTracker™ 519 Green β-Gal Dye vs. competitor Product S.

Protocols

Reagent Preparation

1. Before opening the vial, spin down the solid to the bottom by a microcentrifuge or by a desktop centrifuge.
2. Add 30 µL of DMSO to one vial to prepare 1 mM stock solution.

Staining Protocol of Cultured Cells

1. Dilute an aliquot of stock solution with culture media to a final concentration of 1 µM (staining solution).
2. Remove the culture medium from cell culture dish.
3. Add stain solution to the dish and incubate for 15 minutes at 37 °C, 5% CO_2.
4. After staining, remove the stain solution from the dish and wash 2 or 3 times with HBSS. Replace with HBSS buffer or in other observation buffer/medium without phenol red, which may increase fluorescence backgrounds and observe the fluorescence using a fluorescence microscopy.

Staining Fixed Cells

1. Dilute an aliquot of stock solution with culture media to a final concentration of 1 µM (staining solution).
2. Remove the culture medium from cell culture dish, rinse with cell culture media and fix cells with 3% paraformaldehyde in PBS for 15 minutes.
3. Remove the fixation solution and rinse cells with PBS for 3 times.
4. Add staining solution and incubate for 15 minutes at 37 °C.
5. After staining, remove the stain solution from the dish and wash 2 or 3 times with HBSS. Observe cells with fluorescence microscopy.

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Document Template 20306518 Ver 6.0

20336578 Ver 3.0, Rev 30JUL2024, LB